

## WHAT IS CLAIMED IS:

1. A battery charger for charging a battery,  
comprising:

a controller which detects a charging voltage and  
5 charging current of the battery and controls charging  
of the battery in accordance with a detection result;

a converter which controls a voltage and current  
of a DC power supplied to the battery; and

a switch which sets a supply destination of the  
10 input DC power to one of said converter and said  
controller connected to an output of said converter in  
accordance with the voltage of the input DC power.

2. The charger according to claim 1, wherein when a  
15 DC power corresponding to the charging voltage of the  
battery is input, said switch sets the supply  
destination of the input DC power to said controller,  
and when a DC power having a voltage higher than the  
charging voltage is input, said switch sets the supply  
20 destination of the input DC power to said converter.

3. A battery charger for charging a battery,  
comprising:

a controller which detects a charging voltage and  
25 charging current of the battery and controls charging  
of the battery in accordance with a detection result;

a converter which controls a voltage and current

of a DC power supplied to the battery;

a first input connector which supplies the input  
DC power to said converter; and

a second input connector which supplies the input  
5 DC power to said controller connected to an output of  
said converter.

4. The charger according to claim 3, further  
comprising a detector which detects whether a plug is  
10 connected to said second input connector,

wherein said controller sets a quick charging  
start voltage of the battery in accordance with a  
detection result of said detector.

15 5. The charger according to claim 4, wherein when  
the plug is connected to said second input connector,  
said controller sets a higher quick charging start  
voltage than in a case wherein no plug is connected to  
said second input connector.

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6. A control method of a battery charger having a  
controller which detects a charging voltage and  
charging current of the battery and controls charging  
of the battery in accordance with a detection result,  
25 and a converter which controls a voltage and current of  
a DC power supplied to the battery, the method  
comprising the step of setting a supply destination of

the input DC power to one of the converter and the controller connected to an output of the converter in accordance with the voltage of the input DC power.

- 5 7. A control method of a battery charger having a converter which controls a voltage and current of a DC power supplied to a battery through a switch, a first input connector which supplies the input DC power to the converter, a second input connector which supplies  
10 the input DC power to the switch, and a detector which detects whether a plug is connected to the second input connector, said method comprising steps of:

setting a quick charging start voltage of the battery in accordance with a detection result of the  
15 detector; and

detecting a charging voltage and charging current of the battery and controlling the switch in accordance with a detection result to control charging of the battery.

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8. A computer program product storing a computer readable medium comprising a computer program code, for a control method of a battery charger having a converter which controls a voltage and current of a DC  
25 power supplied to a battery through a switch, a first input connector which supplies the input DC power to the converter, a second input connector which supplies

the input DC power to the switch, and a detector which detects whether a plug is connected to the second input connector, said method comprising steps of:

5        setting a quick charging start voltage of the battery in accordance with a detection result of the detector; and

      detecting a charging voltage and charging current of the battery and controlling the switch in accordance with a detection result to control charging of the  
10    battery.

9.     A battery charger for charging a battery, comprising:

      a controller which detects a charging voltage and  
15    charging current of the battery and controls charging of the battery in accordance with a detection result;

      a connector which charges the battery from a detachable plug and receives supply of a DC power that operates said controller; and

20        a reset unit which resets an operation of said controller when a voltage supplied to said controller decreases,

      wherein said controller executes intermittent charging when the charging current is not more than a  
25    first threshold value  $I_{th1}$ .

10.    The charger according to claim 9, wherein said

controller starts quick charging when the charging voltage exceeds a predetermined value after a start of charging of the battery, starts timer-controlled supplemental charging when the charging current is not  
 5 more than a second threshold value  $I_{th2}$ , starts the intermittent charging when the charging current is not more than a third threshold value  $I_{th3}$ , and ends charging under the timer control, and wherein the threshold values of the current have a relationship  
 10 given by

$$I_{th1} < I_{th3} < I_{th2}.$$

11. A control method of a controller of a battery charger having a connector which charges a battery from  
 15 a detachable plug and receives supply of a DC power that operates the controller, and a reset unit which resets an operation of the controller when a voltage supplied to the controller decreases, said method comprising steps of:

20 detecting a charging voltage and charging current of the battery and controlling charging of the battery in accordance with a detection result; and

executing intermittent charging when the charging current is not more than a threshold value  $I_{th1}$ .

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12. A computer program product storing a computer readable medium comprising a computer program code, for

a control method of a controller of a battery charger having a connector which charges a battery from a detachable plug and receives supply of a DC power that operates the controller, and a reset unit which resets  
5 an operation of the controller when a voltage supplied to the controller decreases, said method comprising steps of:

detecting a charging voltage and charging current of the battery and controlling charging of the battery  
10 in accordance with a detection result; and

executing intermittent charging when the charging current is not more than a threshold value  $I_{th}$ .